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April 12, 2002

Federal Communications Commission
Office of the Secretary
Mr. William F. Caton
445 12th Street S.W. Room TW-A325
Washington, D.C. 20554

Dear Mr. Caton,

Attached are four copies of our response to the *Notice of Proposed Rule Making* related to *Docket No. 02-55*, In the matter of *Improving Public Safety Communications in the 800 MHz Band and Consolidating the 900 MHz Industrial/Land, Transportation, and Business Pool Channels*. We thank the Commission for allowing us this opportunity to voice our opinions on this very important matter.

Should there be any problems or questions with our submittal, please do not hesitate to contact us at the above numbers

Sincerely,

Charles C. Dennis
Chief, ES/T

Copies: Qualex International
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445 12th Street, SW Room CY-B402
Washington, DC 20554

Michael J. Wilhelm
Public Safety and Private Wireless Division
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Thomas Iler, Director, Baltimore County OIT
Fred Homan, Director, Baltimore County OBF

FCC 02-81
April 12, 2002

In the Matter
Improving Public Safety Communication in the 800 MHz Band
Consolidating the 900 MHz Industrial/Land Transportation and Business Pool Channels

Comments: Baltimore County, Maryland

IV.A.1.21 NAM Proposal

Baltimore County finds that adoption of the NAM proposal would require a complete restructuring of their present radio system. Original licensing of Baltimore County's Trunked system in 1988/89 place all 20 channels in the proposed range of SMR, Business, Industrial and Land Transportation. Thus, adoption of the proposed plan would force Baltimore County into a massive programming effort of over 4,000 subscriber units and base station equipment. In addition, an additional 3,000 plus subscriber units in surrounding jurisdictions including Federal, State, Local Government, and news networks who enjoy cross programming for Mutual Aid purposes would be forced to reprogram subscribers to accept new Control Channel configurations.

Baltimore County is presently a working member of the Regional Planning Committee for the 821-824 MHz of spectrum. We understand the need that exists within the Baltimore Washington area for additional Public-Safety frequencies. The NAM proposal would not meet the additional spectrum requirements of the area.

IV.A.2.23 Nextel Proposal

Baltimore County finds that adoption of the Nextel proposal would require a restructuring of the present radio system to accept 8 new frequencies including two control channels. Like the NAM proposal it would force Baltimore County into a massive programming effort of over 4,000 subscriber units and base station equipment. In addition, an additional 3,000 plus subscriber units in surrounding jurisdictions including Federal, State, Local Government, and news networks who enjoy cross programming for Mutual Aid purposes would be forced to reprogram subscribers to accept new Control Channel configurations. However, with only two Control Channels being forced to relocate, Baltimore County and surrounding jurisdictions could proceed with programming in a less intrusive manner.

IV.A.3.27 Other Options

Baltimore County agrees that frequency coordination should be mandated for CMRS licensees and that they be prohibited from using frequencies that could cause intermodulation products for the area Public Safety Systems. CMRS should also be mandated that in considering intermodulation products at a site, they must also consider all frequencies being used at that site by all carriers with the incumbent of the site or tower having frequency priority over newer carriers or technology. Likewise geographical licensing where frequencies are changed by vendors without prior notification should be coordinated

through the frequency coordination methodology prior to instituting the changes at any given site.

Baltimore County disagrees with Nextel in that most of the interference problems are caused by intermodulation products. We find that by far, the most harmful interference is the amount of signal being emitted at the Nextel sites. The constant "on the air" transmit of the Nextel signal, "Motorola IDEN" creates a constant and unrelenting overload of the radio's receiver. In addition, testing has also revealed that adjacent channel interference is common and unpredictable as the Nextel system capacity is being expanded. The geographical licensing allows the changing of frequencies at various sites to meet the needs or loading of the expansion without prior notification or frequency coordination. Thus, sites or areas free of interference today, may be affected tomorrow. This has been verified through our technical staff with field officials of the FCC.

IV.H.68 Frequency Coordination

If it is determined to be in the best interest for all parties that migration to other frequencies is indeed required to eliminate harmful interference, then Baltimore County would request that Frequency Coordination be accomplished by personnel familiar with the respective jurisdiction's demographics, needs, and geography. It is our opinion that the Regional Committee members associated with the 821-824 MHz NPSPAC allocation are the most intimate with the processes and the jurisdictions needs. This knowledge base will prove invaluable in assisting the FCC or an appointed "super coordinator" in quickly and efficiently allocating frequencies on a case by case basis.

It is important to consider that if the Nextel plan is adopted and contiguous spectrum is granted encompassing 700 MHz and 800 MHz for Public Safety, then a comprehensive plan by each Region must be developed and approved by the FCC or the appointed authority. This plan, like the Regional Plans developed in the beginning of the 1990's, should be outlined by the FCC to include how the frequencies will be distributed and in what order of precedence.

IV.H.71

Baltimore County presently operates an Analog Motorola Smartnet system in the 806 MHz range. As licensed, Baltimore County enjoys 95% coverage 95% of the time within light two story frame construction. As Nextel enlarged their system they subsequently contributed to the increase in the noise floor, saturated the front ends of our radio equipment and caused adjacent channel interference. Thus, our RF coverage footprint both in and outside our geographical boundaries has decreased. Areas once enjoying the clear signal of our base station transmitters are now scratchy, intermittent, or dead.

In addition, much of the existing mobile fleet of radios that now do not suffer the same level of signal reduction as the portable subscriber units, are not capable of operating on all frequencies that may be available at the time of redistribution.

> For example: Motorola Syntor Mobile Radios cannot have Control Channel Frequencies that are mixed.

Control Channels 860.9625, 859.9625. 858.9625. 857.9625 are acceptable because they all end in 5. Splinter channels ending in 0 can be used as long as they all end in 0. Mixing frequencies that end in 5 and 0 is not permissible in these units.

For this one reason, systems such as Baltimore County should be allowed first pick within the regional areas should they be required to relocate.

Not only should these systems be allowed first pick of frequencies, but they should not have to deviate from the 25 kHz bandwidth nor accept a loss of geographical coverage footprint or limitations such as those imposed on the 821-824 MHz range of NPSPAC. Maintaining 70 mile separation for co-channel and 55 mile adjacent channel spacing is vital in the Baltimore Washington area. It has been proven that the ducting effect of 800 MHz signals over water, in this case the Chesapeake Bay, has largely contributed to the intermittent reception of other jurisdictions in adjacent regions. (Baltimore County Government and the New Jersey State Police Department). Narrowing this distant to the NPSPAC spacing could have detrimental effects on the engineering of the our entire radio network affecting inbound and outbound signals to field subscribers.

It is our opinion that the 500 million promised by Nextel, would not be enough to pay for the conversions that would be required by Analog Systems nationwide if the aforementioned precautions are not taken by the appointing authority.

V.73 Complementary Solutions

It is the opinion of Baltimore County, based on experiences of our in-house technical facility, its testing on and in conjunction with Nextel Communications, and its past experiences with other carriers in or near the range of 800 MHz, that the constant "on" transmissions associated with Nextel (Motorola) technology make them the neighbor causing harmful interference.

We have found that other carriers such as Baltimore Gas and Electric (BGE) have shared space and frequencies on 800 MHz for years with no interference detrimental to either party. In addition, we have experienced no difficulties with other carriers such as Bell Atlantic Mobile (Verizon) that could not be completely rectified. We understand that all carriers combined have significantly raised the noise floor of the spectrum but in most cases, our Analog System has appropriate levels of signal to overcome the noise and reach 20 dB quieting on field subscribers. (Levels in weaker areas average -95 dBm to quiet the radio with a noise floor average of -100 dBm, equating to a -5 dBm desense)

Mixing Nextel signals into the high noise floor has saturated the front end of radios or raised the noise floor enough to overcome high tower Public Safety signal. Levels now taken at the same location with Nextel transmitters in close proximity show a considerable amount of signal would be required to obtain the 20 dB quieting level. (Noise floor may now increase to an average level of -85 dBm. In this instant, 20 dB quieting would not be obtainable considering that Public Safety signal for 20 dB was -95 prior to Nextel turn on.)

IX Conclusion

Uninterrupted, non-compromised, and redundant public safety communications has never been more in the spot light then it is now after the tragedy of September 11, 2001. Although Baltimore County and its neighboring jurisdictions have strived for interoperability for years using Motorola 800 MHz infrastructures and programming, the costs associated with making all systems compliant remains insurmountable to most jurisdictions.

Forcing State, Local, or City Governments to relocate their system frequencies would not only create the possibilities of these vital systems having to be modified at costs far beyond the 500 million so stated by Nextel, but could create additional interference and interoperability problems as the 821-824 MHz systems are brought into the 806 MHz range. These possibilities should be investigated at the regional levels prior to a final decision being adopted.

It is Baltimore County's contention that modifying all of these systems in the time frame mentioned by Nextel, would lead to unprecedented hardships on the regional committees and governmental entities if done without a full understanding of the associated problems. We believe that the Regional Committees be given six months to compile the necessary data from all the entities in their region including the benefits, estimated costs, and anticipated problems that each governmental license holder feels would be inherent to such a frequency reallocation. These entities would include not only the 821-824 MHz NPSPAC band, but should include entities within the region that are incumbent in the 806 MHz band.